TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT

APPLICATION OF SUPERCOMPACTION TO CH-TRU WASTE

Identification No.: RL-MW035
Date: October 2001

Program: Waste Management
OPS Office/Site: Richland Operations Office/Hanford Site
PBS No.: RL-CP02
Waste Stream: 2121 – CH TRU to WRAP
TSD Title: 205 – WRAP
Operable Unit (if applicable): N/A
Waste Management Unit (if applicable): N/A
Facility: WRAP

Priority Rating:

This entry addresses the "Accelerated Cleanup: Paths to Closure (ACPC)" Priority:

____ 1. Critical to the success of the ACPC
_X_ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
____ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: Application of Supercompaction to CH-TRU Waste

Need/Opportunity Category: *Technology Opportunity* – The Site desires an alternative to the current baseline technology.

Need Description: As designed, the Waste Receiving and Processing Facility has a glovebox for TRU waste and a glovebox for LLW waste. Current needs are for significantly more TRU capacity than LLW capacity. Therefore, there would be a large benefit to converting the LLW glovebox to also accept TRU waste processing. This will result in a balanced process flow for WRAP without choke points. It will also allow for supercompaction capability for TRU waste processing, which is not currently available. Supercompaction of these wastes will increase volumetric efficiency of shipments to the Waste Isolation Pilot Plant.

Schedule Requirements:

Earliest Date Required: 1/01/03

Latest Date Required: 1/01/03

Needed by 1/01/03 due to expected increased TRU processing needs at WRAP.

Problem Description: Processing rate of TRU waste through the Waste Receiving and Processing facility is constrained due to having only a single glovebox line capable of processing the waste. If the LLW line could be converted to also accept TRU waste, this constraint would be eliminated.

Potential Life-Cycle Cost Savings of Need (in $000s) and Cost Savings Explanation: Approximately $95,000K could be saved over 20 years through implementation of this project. The majority of the savings would be for reduced headspace gas sampling requirements due to the ability to compact the TRU waste in the former LLW-only line. (An average 4 to 1 compaction ratio is expected, which yields a 75% reduction in sampling needs, at $3K per sample). There would also be savings in transportation to WIPP, also due to compaction, and labor savings.

Benefit to the Project Baseline of Filling Need: Cost savings and ability to meet required processing schedules.

Relevant PBS Milestone: Outyear production milestones for the TRU Program.

Functional Performance Requirements:

Work Breakdown Structure (WBS) No.:	***TIP No.:***
1.2.2	NA

Justification For Need:

Technical: Improved efficiency of TRU waste processing through use of supercompaction

Regulatory: NA

Environmental Safety & Health: New exit port will provide increased contamination control.

Cultural/Stakeholder Concerns: NA

Other: None identified.

Current Baseline Technology: Existing TRU line does not have compaction ability. Installation of a tipper and modifying the exit port to a TRU port in the LLW line will allow compaction of TRU waste in the former LLW-only line.

End-User: Waste Management.

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DOE End-User/Representative Point-of-Contact: Kevin Leary, DOE-RL, (509) 373-7285, Fax (509) 372-1926, Kevin_D_Leary@rl.gov.

Waste volume, m^3	Current: N/A; Forecasted (5 yrs): 1,600 m^3
Waste form	Drummed TRU waste
Waste stream I.D.	2121
Contaminants and co-contaminants	TBD
Function of technology	Allow supercompaction to be used with TRU waste.
Source category	Various Hanford Site programs